

**FCC 312
 Schedule S**

**FEDERAL COMMUNICATIONS COMMISSION
 SATELLITE SPACE STATION AUTHORIZATIONS
 (Technical and Operational Description)**

**Page 1: General,
 Frequency Bands,
 and GSO Orbit**

S1. GENERAL INFORMATION Complete for all satellite applications.

a. Space Station or Satellite Network Name: YAMAL 300K		e. Estimated Date of Placement into Service:	i. Will the space station(s) operate on a Common Carrier Basis: N
b. Construction Commencement Date:		f. Estimated Lifetime of Satellite(s): 15 Years	j. Number of transponders offered on a common carrier basis: 0
c. Construction Completion Date:		g. Total Number of Transponders: 6	k. Total Common Carrier Transponder Bandwidth: 0 MHz
d1. Est Launch Date Begin:	d2. Est Launch Date End:	h. Total Transponder Bandwidth (no. transponders x Bandwidth) 432 MHz	l. Orbit Type: Mark all boxes that apply: <input checked="" type="checkbox"/> GSO <input type="checkbox"/> NGSO

S2. OPERATING FREQUENCY BANDS Identify the frequency range and transmit/receive mode for all frequency bands in which this station will opera
 Also indicate the nature of service(s) for each frequency band.

Frequency Band Limits				e. T/R Mode	Nature of Service(s): List all that apply to this band	f.
Lower Frequency (Hz)		Upper Frequency (Hz)				
a. Numeric	b. Unit (K/M/G)	c. Numeric	d. Unit (K/M/G)			
14000	M	14500	M	R	Fixed Satellite Service	
10950	M	11200	M	T	Fixed Satellite Service	
11450	M	11700	M	T	Fixed Satellite Service	

S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

a. Nominal Orbital Longitude (Degrees E/W): 177 W	b. Alternate Orbital Longitude (Degrees E/W):	c. Reason for orbital location selection: The 177 W.L. location allows service to Eastern Russia, the Pacific Ocean and Northwest North America.	
Longitudinal Tolerance or E/W Station-Keeping: d. Toward West: 0.05 Degrees e. Toward East: 0.05 Degrees	f. Inclination Excursion or N/S Station-Keeping Tolerance: 0.05 Degrees	Range of orbital are in which adequate service can be provided (Optional): g. Westernmost: h. Easternmost:	
i. Reason for service are selection (Optional):			

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S6. SERVICE AREA CHARACTERISTICS for each service area provide:

(a) Service Area ID	(b) Type of Associated Station (Earth or Space)	(c) Service Area Diagram File Name (GXT File)	(d) Service Area Description. Provide list of geographic areas (state postal codes or ITU 3-ltr codes), satellites or Figure No. of Service Area Diagram.
SA1	E		-6 dB contour of beam NB1U
SA2	E		-6 dB contour of beam NB1D

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S7. SPACE STATION ANTENNA BEAM CHARACTERISTICS For each antenna beam provide:

(a) Beam ID	(b) T/R Mode	Isotropic Antenna Gain		(e) Pointing Error (Degrees)	(f) Rotational Error (Degrees)	(g) Min. Cross- Polar Iso- lation (dB)	(h) Polar- ization Switch- able? (Y/N)	(i) Polarization Alignment Rel. Equatorial Plane (Degrees)	(j) Service Area ID	Transmit			Receive				
										(k) Input Losses (dB)	(l) Effective Output Power (W)	(m) Max. EIRP (dBW)	(n) System Noise Temp (k)	(o) G/T Max. Gain Pt. (db/K)	(p) Min. Saturation Flux Density (dBW/m2)	Input Attenuator (dB)	
		(q) Max. Value	(r) Step Size														
NB1U	R	31	25	0.1		30	N	90	SA1					6.6	-103.1		
NB1D	T	31.1	25.1	0.1		30	N	0	SA2			53.6					

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S8. ANTENNA BEAM DIAGRAMS For each beam pattern provide the reference to the graphic image and numerical data:
 Also provide the power flux density levels in each beam that result from the emission with the highest power flux density.

(a) Beam ID	(b) T/R Mode	(c) Co-or Cross Polar Mode ("C" or" X")	(d) GSO Ref. Orbital Longitude (Deg. E/W)	(e) NGSO Antenna Gain Contour Description (Figure/Table/ Exhibit)	(f) GSO Antenna Gain Contour Data (GXT File)	Max. Power Flux Density (dBW/M2/Hz)				
						At Angle of Arrival above horizontal (for emission with highest PFD)				
						(g) 5 Deg	(h) 10 Deg	(i) 15 Deg	(j) 20 Deg	(k) 25 Deg
NB1U	R	C	-177		NB1U.gxt					
NB1D	T	C	-177		NB1D.gxt	-152.4	-151.7	-151.3	-150.9	-151.4

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S9. SPACE STATION CHANNELS For each frequency channel provide: S10. SPACE STATION TRANSPONDERS For each transponder provide:

(a) Channel No.	(B) Assigned Bandwidth (kHz)	(c) T/R Mode	(d) Center Frequency (MHz)	(e) Polarization (H, V, L, R)	(f) TTC or Comm Channel (T or C)
U01	72000	R	14040	V	C
U02	72000	R	14125	V	C
U03	72000	R	14210	V	C
U04	72000	R	14300	V	C
U05	72000	R	14380	V	C
U06	72000	R	14460	V	C
D01	72000	T	10990	H	C
D02	72000	T	11075	H	C
D03	72000	T	11160	H	C
D04	72000	T	11500	H	C
D05	72000	T	11580	H	C
D06	72000	T	11660	H	C

(a) Transponder ID	(b) Transponder Gain (dB)	Receive Band		Transmit Band	
		(c) Channel No.	(d) Beam ID	(e) Channel No.	(f) Beam ID
1A	1	U01	NB1U	D01	NB1D
2A	1	U02	NB1U	D02	NB1D
3A	1	U03	NB1U	D03	NB1D
4A	1	U04	NB1U	D04	NB1D
5A	1	U05	NB1U	D05	NB1D
6A	1	U06	NB1U	D06	NB1D

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S11. DIGITAL MODULATION PARAMETERS For each digital emission provide:

(a) Digital Mod. ID	(b) Emission Designator	(c) Assigned Bandwidth (kHz)	(d) No. of Phases	(e) Uncoded Data Rate (kbps)	(f) FEC Error Correction Coding Rate	(g) CDMA Processing Gain (dB)	(h) Total C/N Performance Objective (dB)	(i) Single Entry C/I Objective (dB)
D1	1M20G7D	1200						
D2	36M0G7D	36000						
D3	54M0G7D	54000						
D4	72M0G7D	72000						
D5	500KG7D	500						
D6	9M00G7D	9000						

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Page 10: TT and C

S14. Is the space station(s) controlled and monitored remotely? If Yes, provide the location and telephone number of the TT and C control point(s): Yes

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Characteristics and
Certifications**

S15. SPACECRAFT PHYSICAL CHARACTERISTICS:

S16. SPACECRAFT ELECTRICAL CHARACTERISTICS:

S17. CERTIFICATIONS:

a. Are the power flux density limits of § 25.208 met?:	<input checked="" type="checkbox"/>	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>	N/A
b. Are the appropriate service area coverage requirements of § 25.143(b)(ii) and (iii), or § 25.145(c)(1) and (2) met?	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	<input checked="" type="checkbox"/>	N/A
c. Are the frequency tolerances of § 25.202(e) and the out-of-band emission limits of § 25.202(f)(1), (2) and (3) met?	<input checked="" type="checkbox"/>	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>	N/A
In addition to the information required in this Form, the space station applicant is required to provide all the information specified in Section 25.114 of the Commission's rules, 47 C.F.R § 25.114.						

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